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begun early in 1916 and carried through the summer of 1917, but, owing to Professor Herms's absence while serving with the United States Army, the work was held in abeyance until the opening of this year. The greater part of the summer's work was carried on in the San Joaquin Valley, however, several weeks were spent in the mountainous countries of Alpine, Mono and Inyo and in portions of San Bernardino. The highest elevation reached was approximately ten thousand feet and the highest elevation at which *Anopheles* mosquitoes (*Anopheles quadrimaculatus*) were encountered at any time during the survey was 5,482 feet. A total of 18,088 miles were covered in the survey, all by automobile. A report of the survey in the northern third of the state has already been published (U. S. Public Health Report, July 18, 1919) and other reports will be issued in due time. The survey was conducted under the joint auspices of the California State Board of Health and the University of California.

DR. STUART WELLER, professor of paleontologic geology at the University of Chicago, succeeds the late Samuel Wendell Williston as director of the Walker Museum.

DURING summer quarter at the Yerkes Observatory of the University of Chicago, Paul Beifeld, professor of astronomy and director of Swasey Observatory, Denison University, acted as voluntary assistant; Francis P. Leavenworth, professor of astronomy and director of the observatory at the University of Minnesota, as visiting professor, and Clifford C. Crump, professor of astronomy and director of the Perkins Observatory, at Ohio Wesleyan University, as volunteer research assistant.

MR. JULIAN S. HUXLEY, a scholar of Balliol College, Oxford, from 1905 to 1909, and from 1913 to 1916 associate professor of biology in the Rice Institute, Houston, Texas, has been elected a fellow of New College.

#### UNIVERSITY AND EDUCATIONAL NEWS

THE board of trustees of the University of Tennessee is planning to erect a building for

the medical department of the university at Memphis, to cost \$100,000.

At the University of Arkansas Dr. John T. Buchholz, formerly of the West Texas Normal College, has been appointed head of the department of botany, and G. P. Stocker, formerly professor of civil engineering in the Agricultural and Mechanical College of Mississippi, head of the department of civil engineering.

B. L. RICHARDS, Ph.D. (Wisconsin), has been appointed associate professor of botany at the Utah Agricultural College and Experiment Station.

MR. W. H. TIMBIE, author of books on electrical engineering and applied electricity, has been appointed associate professor of electrical engineering in the Massachusetts Institute of Technology.

DR. ALPHONSE RAYMOND DOCHEZ, of the Rockefeller Institute for Medical Research, has been appointed associate professor of medicine at the Johns Hopkins University.

PROFESSOR ANDREW HUNTER has been appointed to the chair of biochemistry in the University of Toronto, vacant through the resignation of Professor Brailsford Robertson.

DR. S. CHAPMAN, chief assistant at Greenwich Observatory, has been appointed professor of mathematics in the University of Manchester.

#### DISCUSSION AND CORRESPONDENCE

##### DIRECT PHOTOGRAPHY OF COLONIES OF BACTERIA

IN view of the desirability at times of obtaining photographic record of Petri dishes which have been inoculated with bacteria and incubated, the following extremely simple and rapid method may prove useful.

The special value of this method from the pedagogical point of view is its simplicity, no camera, plates, or dark room being necessary. This makes it possible for all members of a class to preserve accurate and permanent records in comparing bacterial counts in samples of water or milk, to show form of growth on Petri dishes, to illustrate the

colonies arising from the tracks of flies walking across the gelatine, etc.

The method consists of placing the uncovered Petri dish against photographic paper in a dark corner of the laboratory, bringing forward into the light, and returning to a dark corner for development and fixing. I have had very good results by using Azo hard X exposed to a medium light for five seconds. Good results can also be obtained by using blue-print paper exposed to bright sunlight for forty-five seconds. This paper requires less care in handling in the light and only water for fixing but must be fastened to the Petri dish by spring clip or gummed label to prevent moving during the long exposure.

The result of this direct photography is a positive; that is the white bacterial colonies on the Petri dish appear white on the print; not black as they would on a negative. Careful comparison of the direct prints with ordinary photographs made from a negative shows no loss by the shorter method.

A. A. COPE

#### SHELL-SHOCK IN THE BATTLE OF MARATHON

TO THE EDITOR OF SCIENCE: Herodotus, describing the battle of Marathon, 490 B.C. (Book VI., section 117), says:

The following prodigy occurred there: an Athenian, Epizelus, son of Cuphagoras, while fighting in the medley, and behaving valiantly, was deprived of sight, though wounded in no part of his body, nor struck from a distance; and he continued to be blind from that time for the remainder of his life. I have heard that he used to give the following account of his loss. He thought that a large heavy-armed man stood before him, whose beard shaded the whole of his shield; that this specter passed by him, and killed the man that stood by his side. Such is the account I have been informed Epizelus used to give.

Is this, perchance, the first account of "shell-shock"?

DEAN A. WORCESTER

#### THE AURORA OF AUGUST 11 AT BURLINGTON, VERMONT

ON August 11, at approximately 10 P.M. (E'n "Summer" Time), the aurora borealis, as seen in Burlington, Vt., appeared as follows:

On a cloudless night with a nearly full moon, and east-west band of light, from horizon to horizon, increased in brightness as each end broadened northward. The zenith became brilliant violet, an inverted bowl of shifting color. Practically the whole sky was bright; and especially just above the northern horizon intensely white rays shot up toward the zenith. Near the violet center, pale pink and green occasionally showed. The lights lasted for several minutes, lingering longest near the northern skyline.

JEAN DICKINSON

#### WILL THERE BE ANOTHER AURORA ABOUT SEPTEMBER 7-8, 1919?

THE intensity of the magnetic storm and the brilliance of the aurora of August 11-12 would indicate a disturbed region on the sun, the next presentation of which, opposite the earth about September 7-8, may produce another aurora. Such was the case April 4-6, 1918, following the brilliant aurora of March 7-8.

CHARLES F. BROOKS

#### QUOTATIONS

##### LABOR AND SCIENCE

ARE the great industrial countries moving in a vicious circle? The manifesto of the American Federation of Labor, which we publish [reprinted from SCIENCE] in another column, takes this view, and moreover, suggests a remedy. There is an "ever-increasing struggle of the workers to raise the standard of their living." Hitherto this has implied increased wages and shorter hours, or less production at higher cost. But now the "limit has been reached after which the average standard of living can not progress by the usual means of adjustment," by which are meant strikes, politicians' promises and public subsidies. If bankruptcy, moral and financial, is not to ensue, production, says the manifesto, must be increased by research and by the utilization in industry of the results of research. The vital necessity of scientific methods is clearly and cogently stated. In an age of steel and telegraphy, of aseptic surgery and of preventive medicine, of Mendelian breeding